

# **PITFALLS IN THE DIAGNOSIS OF SKELETAL TUBERCULOSIS IN CHILDREN**

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# INTRODUCTION

- ❖ Ancient disease
- ❖ Identified in Egyptian mummies dating back to 9000 BC.
- ❖ Skeletal tuberculosis (TB) accounts for 10 to 35 percent of cases of extra pulmonary tuberculosis

# OBJECTIVE

- ❖ The varied presentation
- ❖ Time lag between onset of symptoms & diagnosis

# **SUBJECTS & METHODS**

- ❖ **Period of study - JAN 2012 - JUNE 2015**
- ❖ **Place of study - Department of Orthopedics & Pediatrics**

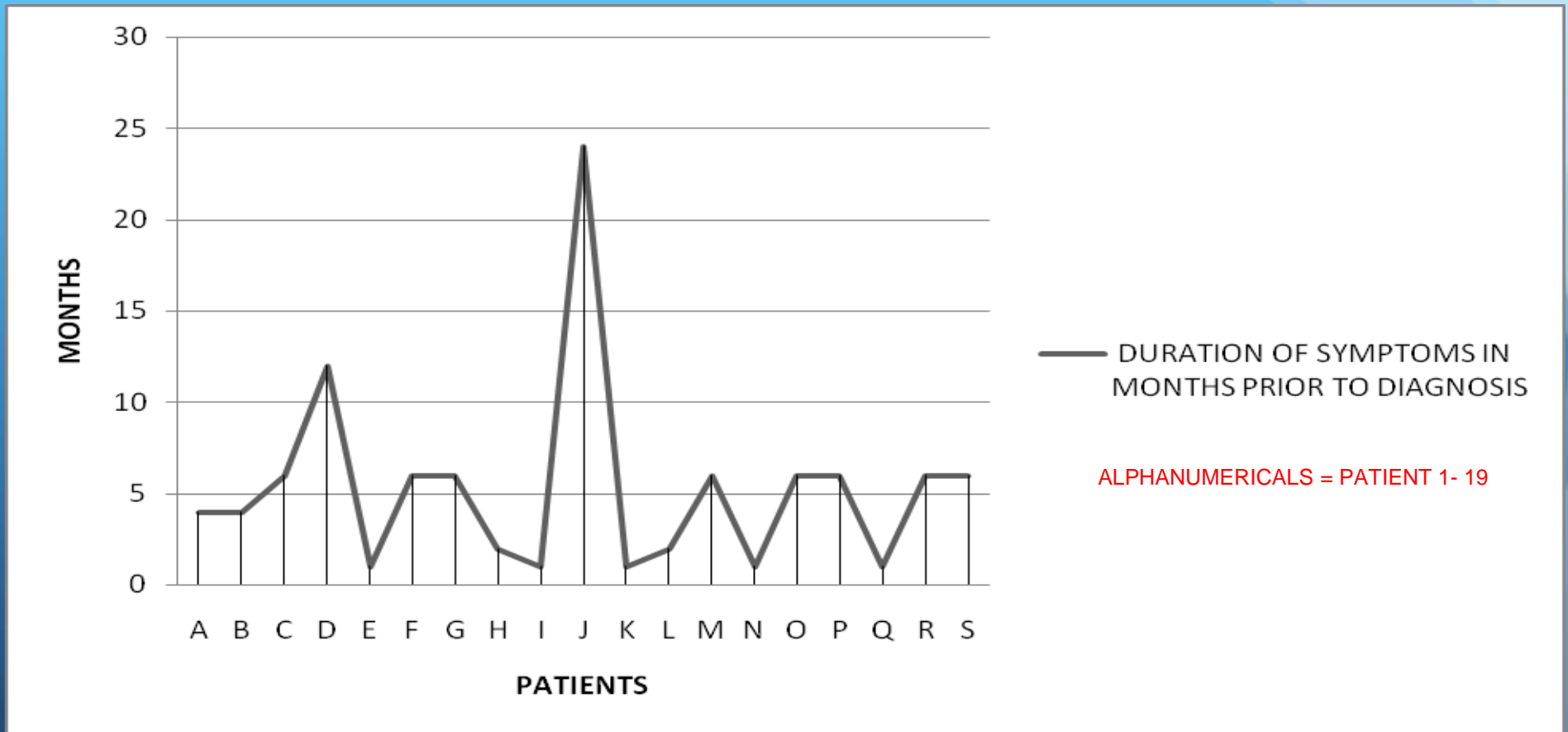
# RESULTS

- ❖ **STUDY PERIOD - 2012 - 2015 - 3 YEARS**
- ❖ **MEAN AGE - 6 YEARS**
- ❖ **YOUNGEST - 13 MONTHS & OLDEST - 13 YEARS**

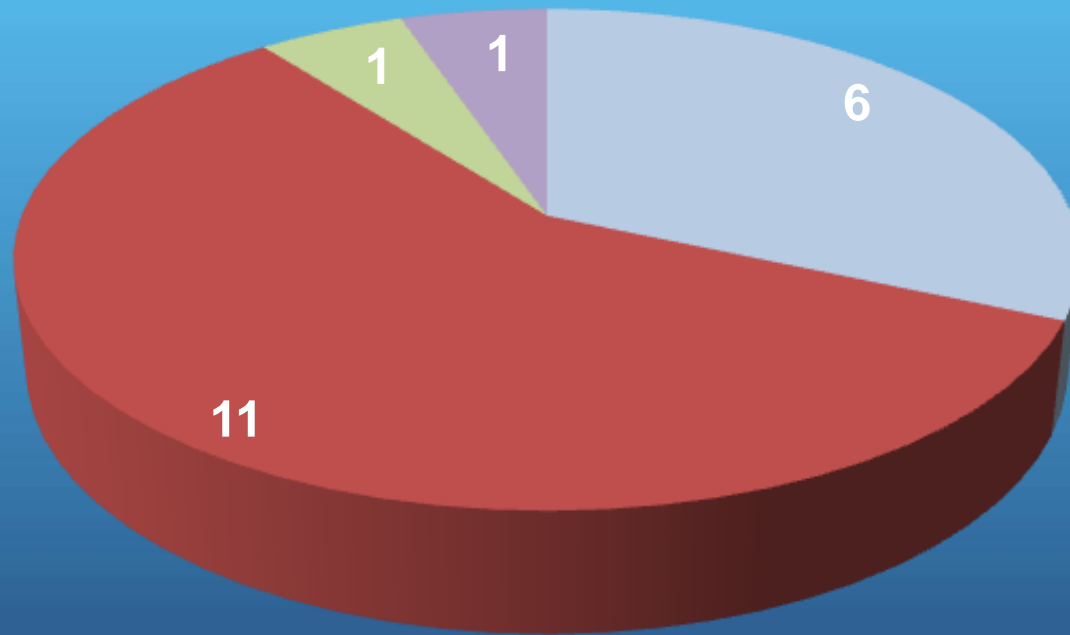
■ FEMALES  
■ MALES



# DURATION OF SYMPTOMS IN MONTHS PRIOR TO DIAGNOSIS



# TIME LAG



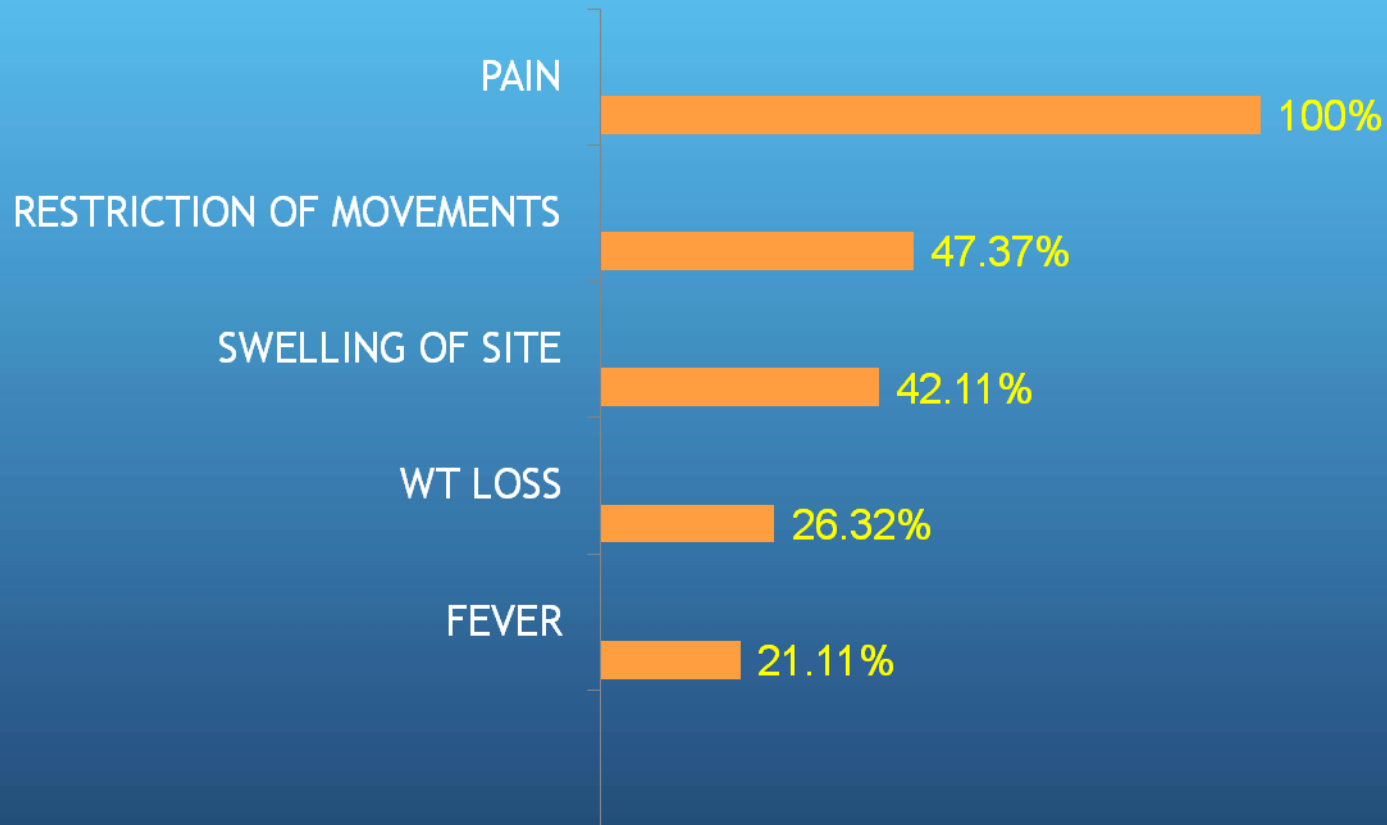
■ < 1 month

■ 4-6 months

■ 1 year

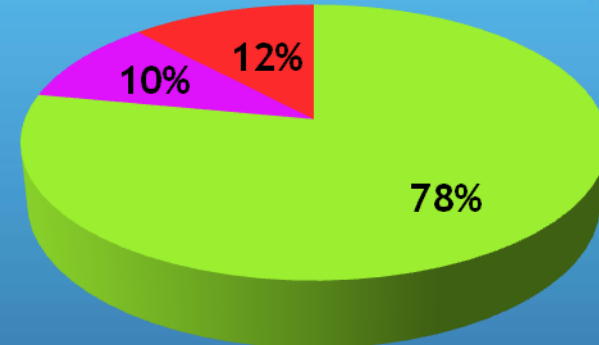
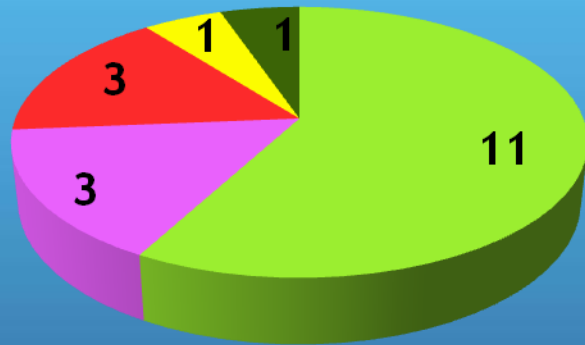
■ 2 years

# MODE OF PRESENTATION





# SITE OF INFECTION

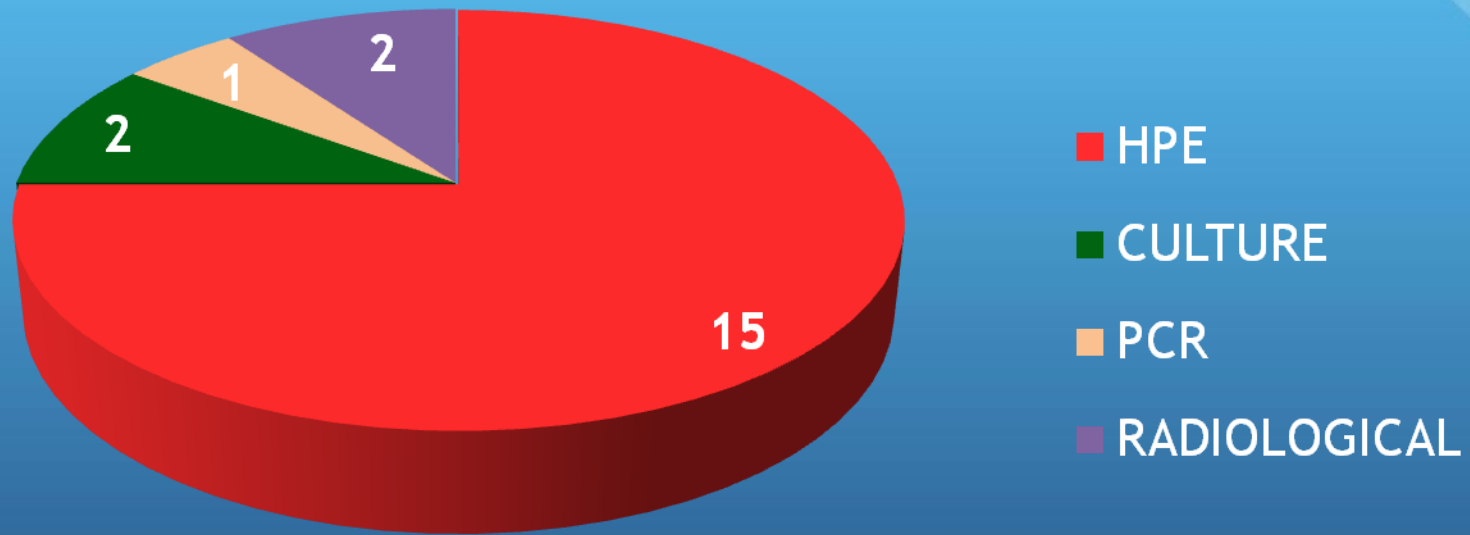


■ SPINE  
■ HIP JOINT  
■ PHALANX

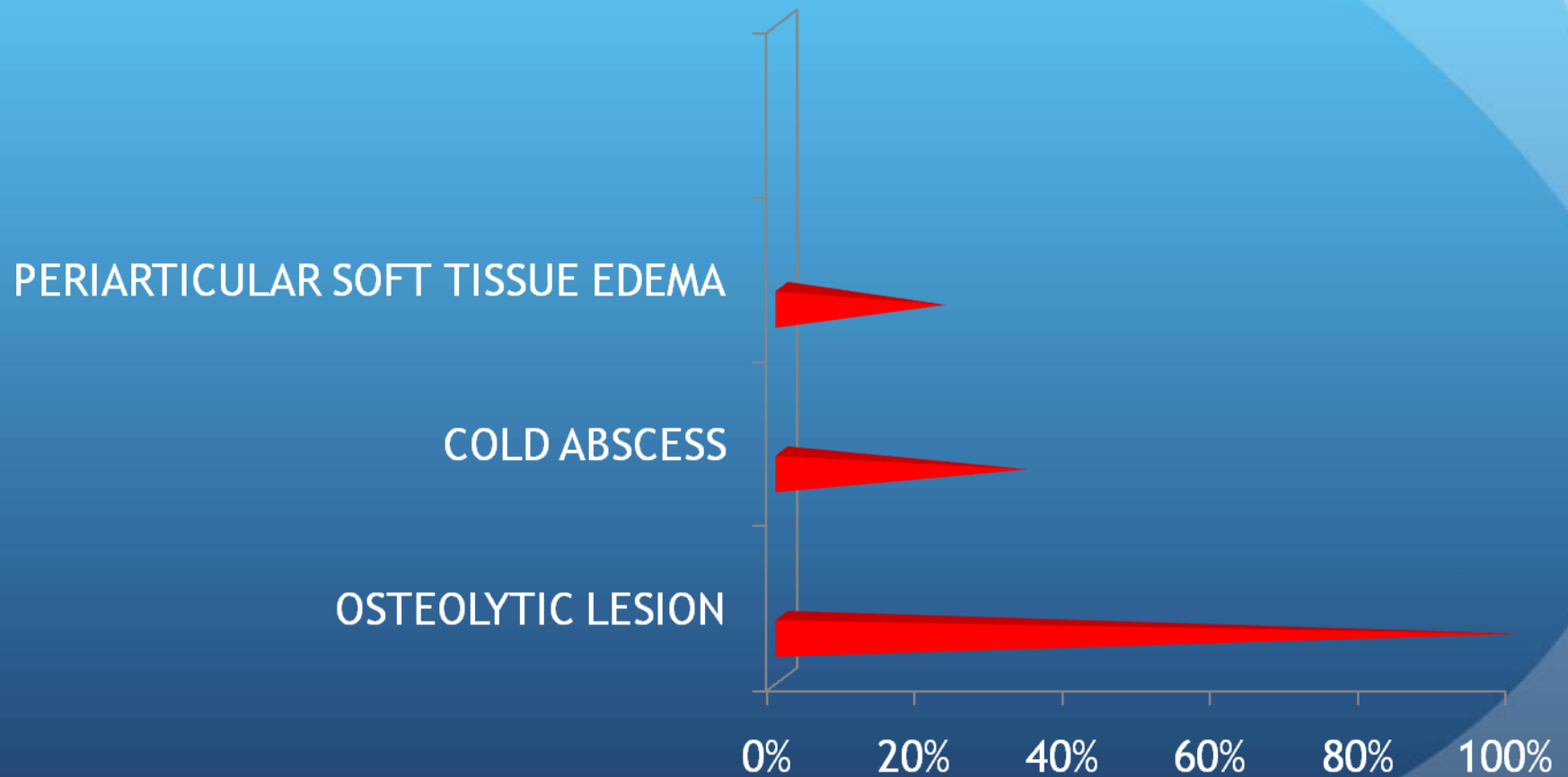
■ KNEE JOINT  
■ SHOULDER JT

■ Thoracic ■ Lumbar ■ Thoracolumbar

# MODE OF DIAGNOSIS



# RADIOLOGY-XRAY/MRI



# **FOLLOWUP**

- ❖ All 19 children were managed with ATT (2HRZE+7HRE)
- ❖ 17 children required surgical debridement
- ❖ On follow up ,disease is quiescent in all of them

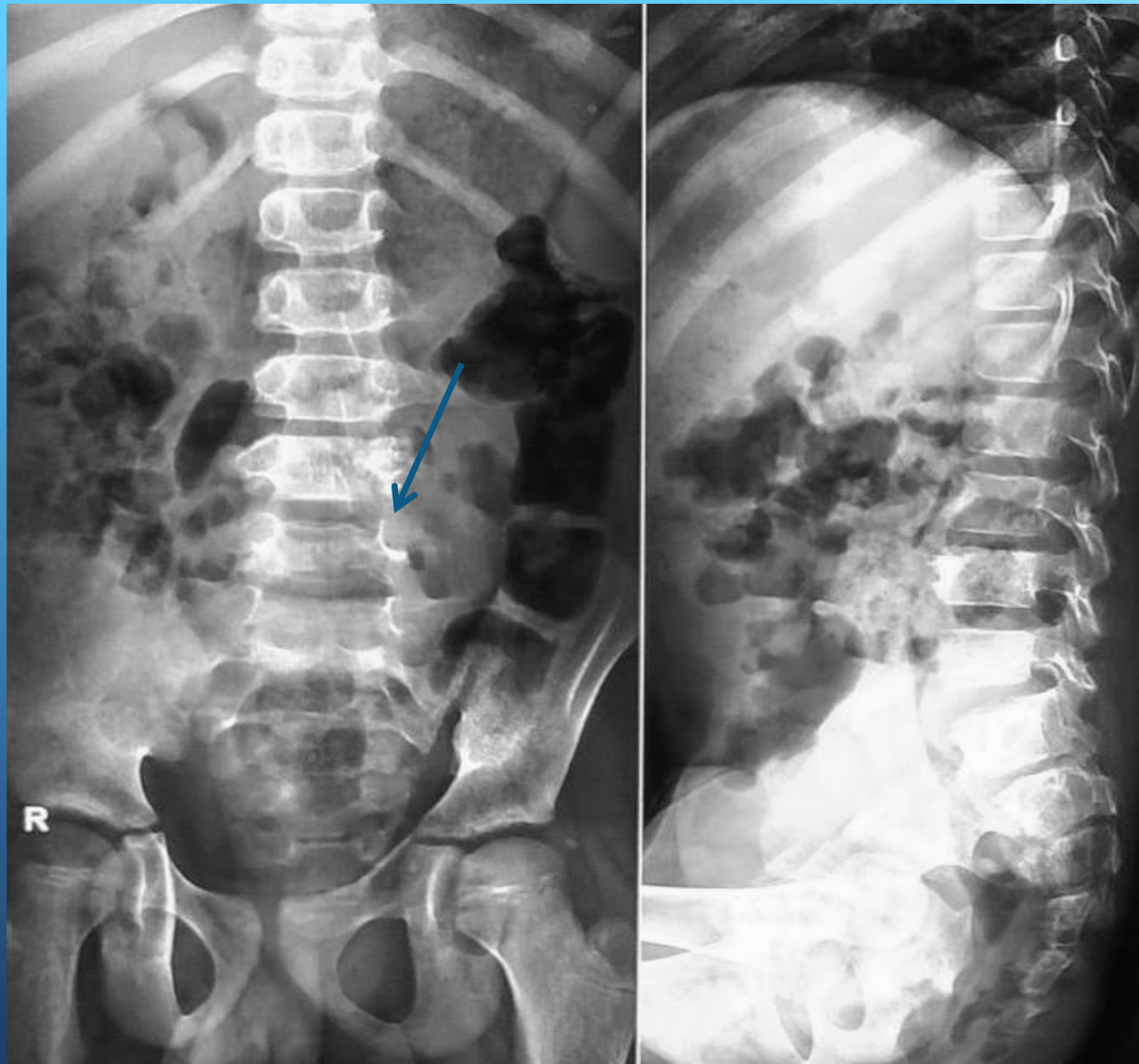
# **A GLANCE AT VARIED PRESENTATION**

# GLUTEAL ABSCESS

- ❖ 9 year old boy - fever, severe pain & Left gluteal swelling
- ❖ ESR -82 CRP -112
- ❖ Contact history +
- ❖ L4 & D12 pedicle destruction - Pre & Paraspinal abscess
- ❖ USG guided aspiration - Pus culture - E.coli & Klebsiella

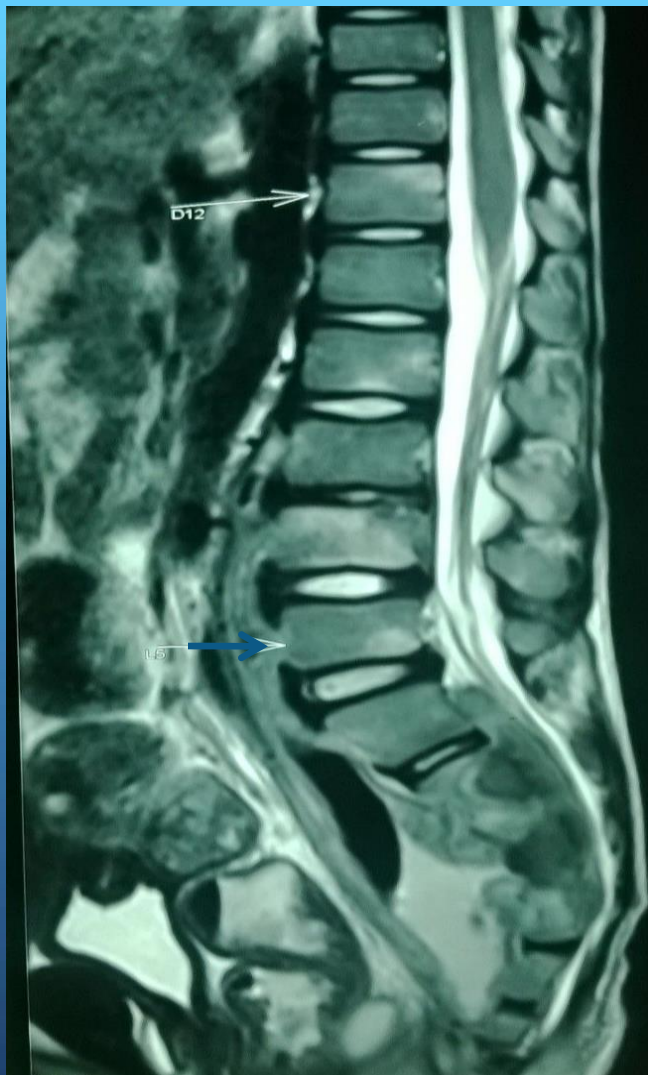
- In view of positive contact history AFB culture was done which was also positive
- Hence it was a secondary infection of the cold abscess

**Destruction of L4 pedicle on the L side with mild  
reduction in L3-L4 disc space**





**Destructive lesion in D12 ( L ) side,L2-L5 & part of sacrum  
Pre/para vertebral abscess. Extension into L ischiorectal fossa**



# MYELOPATHY

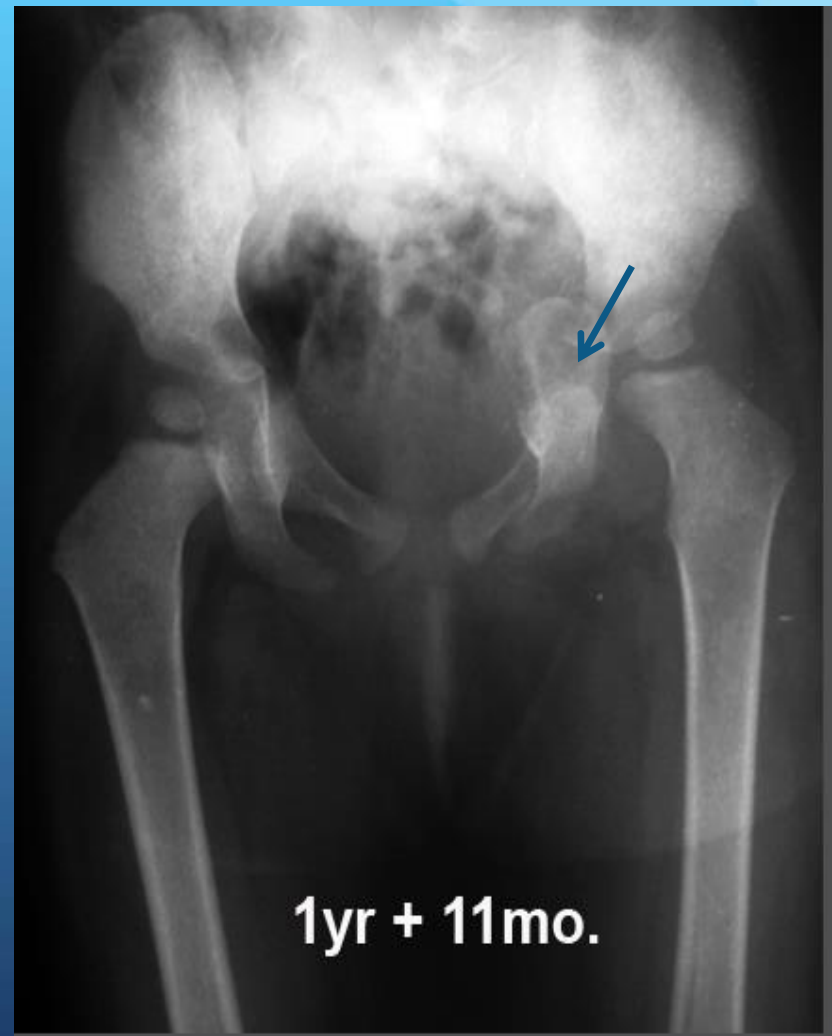
- ❖ 2 years female
- ❖ Pain in the hip joint and thigh of 6 months duration
- ❖ Treated for non specific pain with analgesics and was later referred to a neurologist.
- ❖ In view of up going plantar reflex a provisional diagnosis of myelopathy was made

- ❖ The MRI showed a part of the hip joint with osteolytic lesion
- ❖ Histopathology proved the diagnosis of tuberculosis and she was treated for the same.

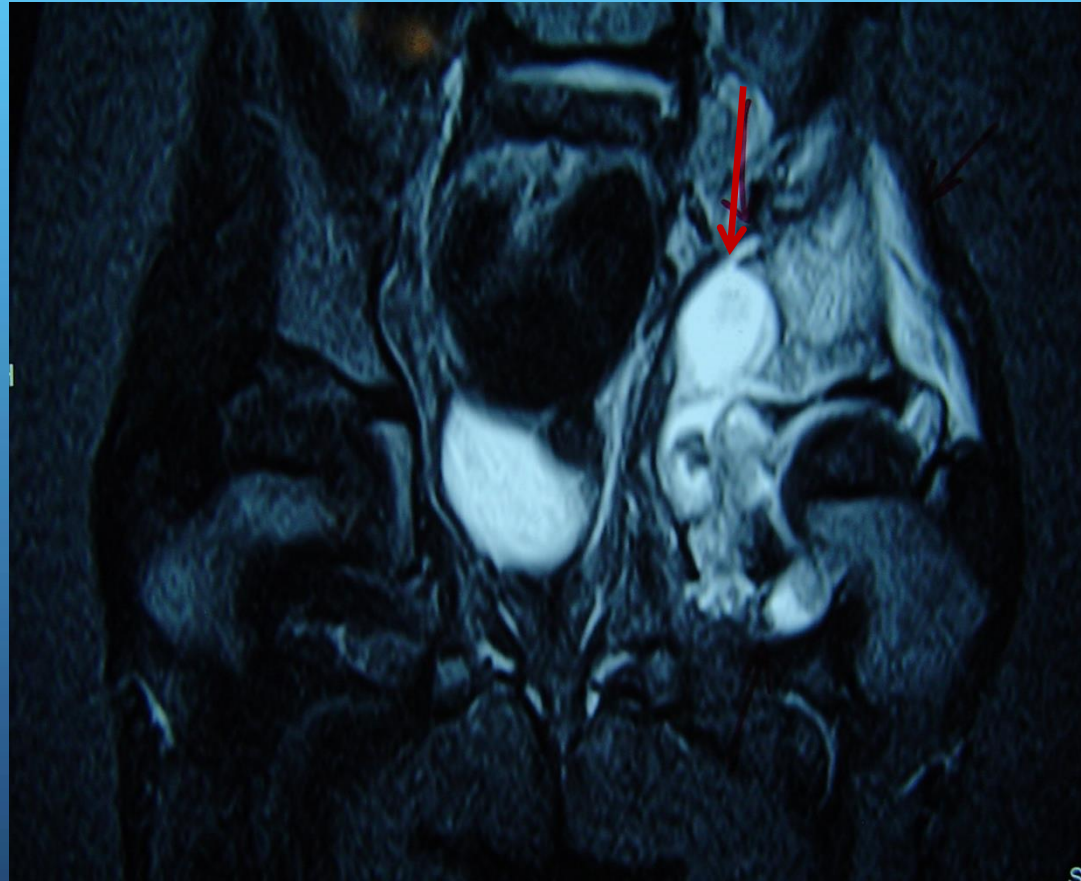
## AT PRESENTATION



## DESTRUCTION OF RT HIP WITH WANDERING ACETABULUM



## DESTRUCTION OF HIP WITH ABSCESS ON INNER WALL OF HIP



SE

**6 MONTHS AFTER ATT**



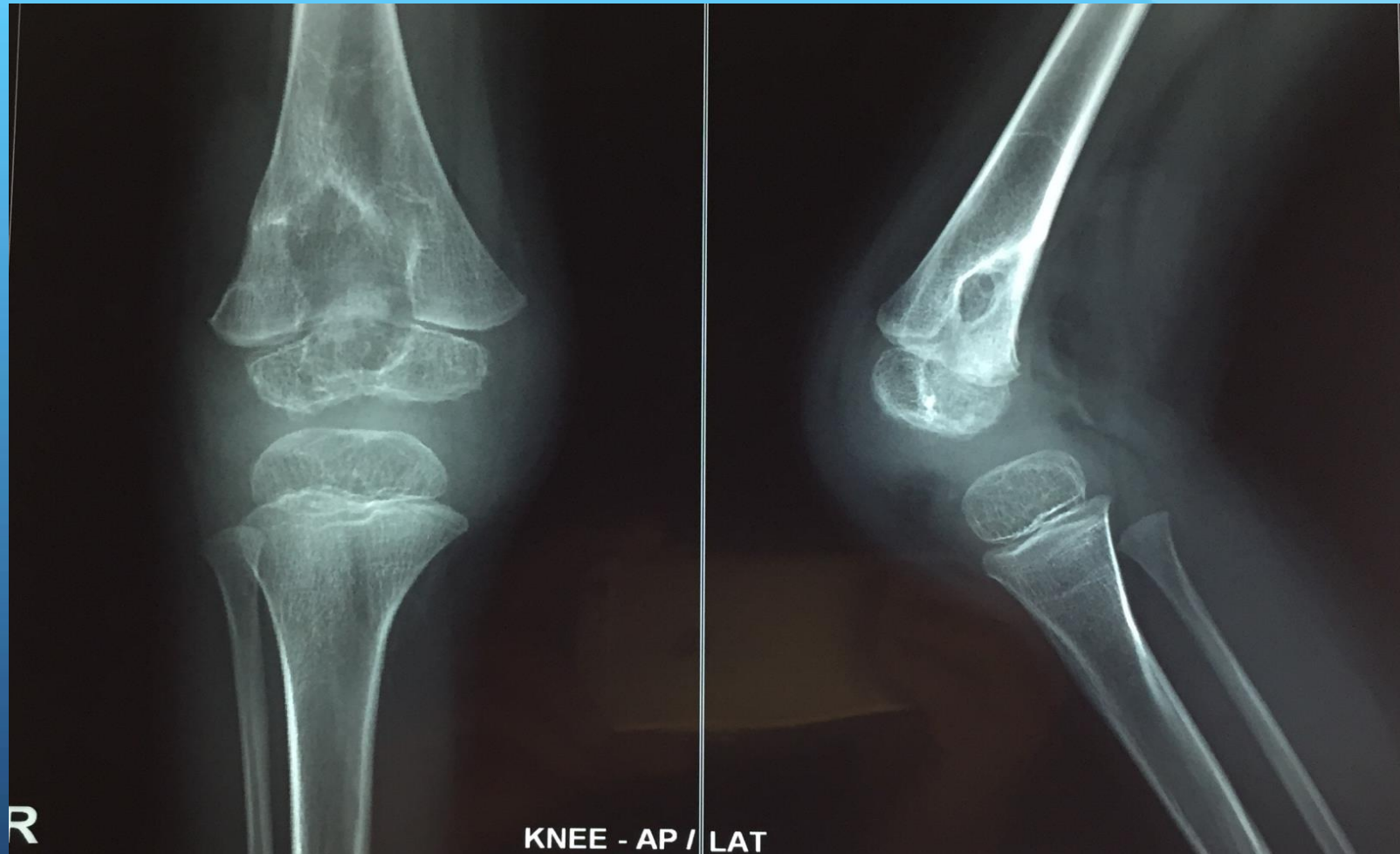
# **SYNOVITIS – RT KNEE JOINT**

- ❖ **3 years healthy male child**
- ❖ **Pain & swelling -Right knee joint -1 month duration.**
- ❖ **Synovial biopsy was suggestive of tuberculosis - started on ATT**
- ❖ **3 months after ATT - swelling persisted**

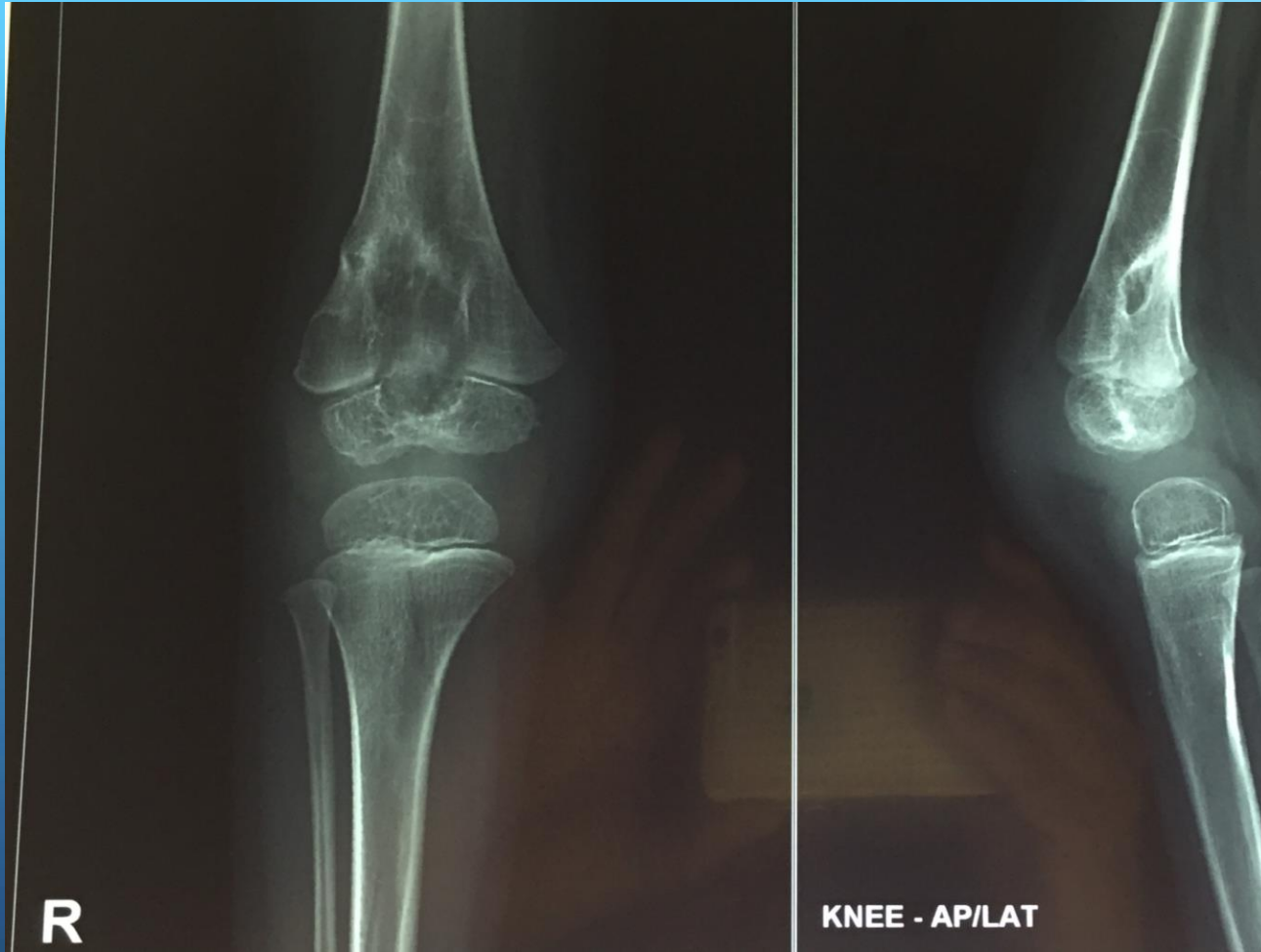
- ❖ **MRI knee jt - Large lytic lesion in the metaphysis extending across the physis into the epiphysis**
- ❖ **Curettage of the lytic lesion - HPE suggestive of Tuberculosis.**
- ❖ **Queiscent after 1 year of ATT**



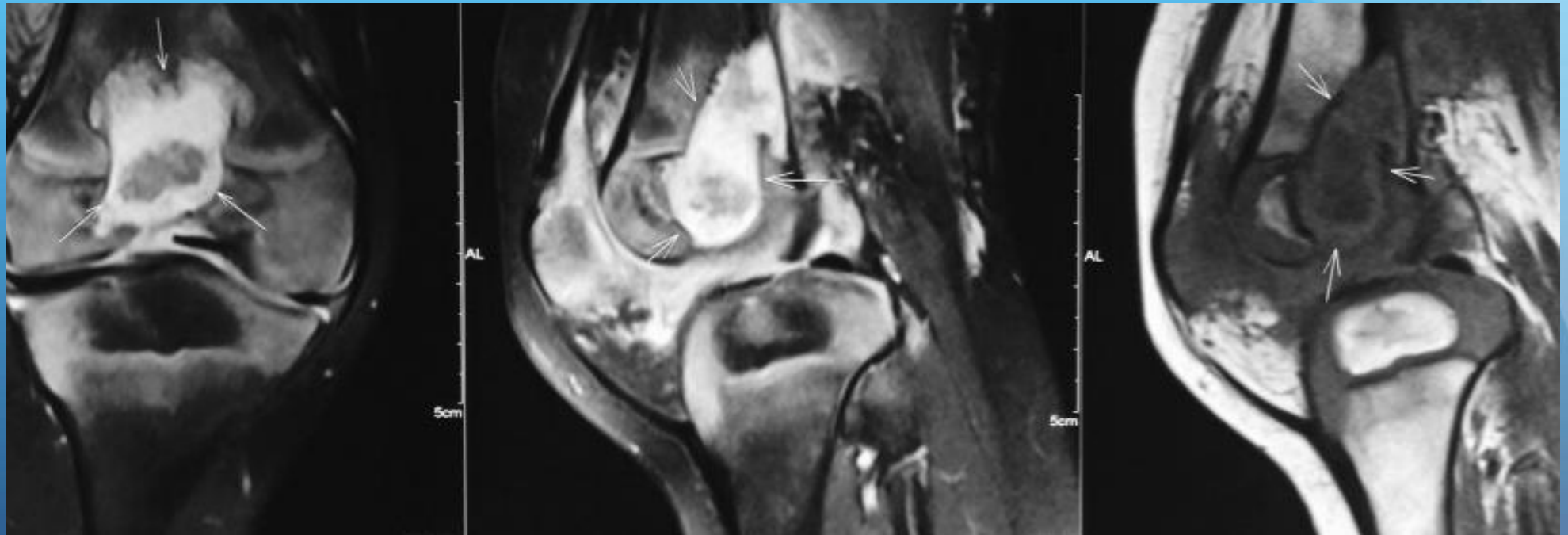
**LARGE LYTIC LESION METAPHYSIS  
SEPT 2015**



FEB 2016

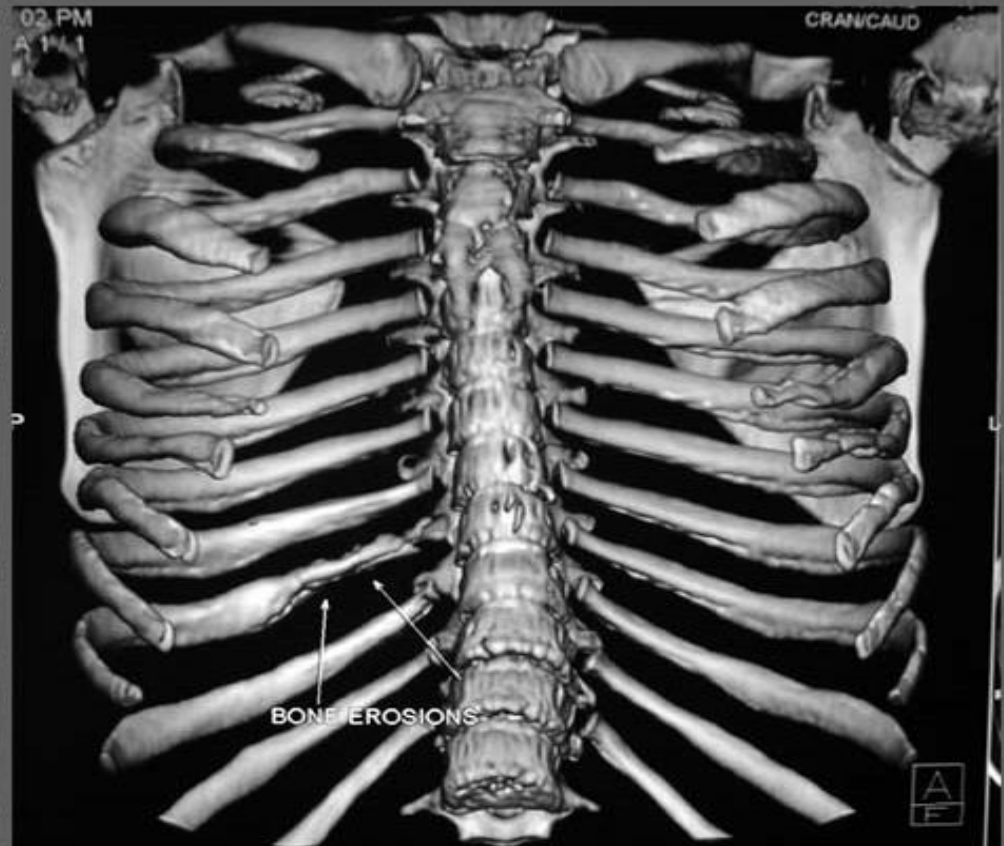
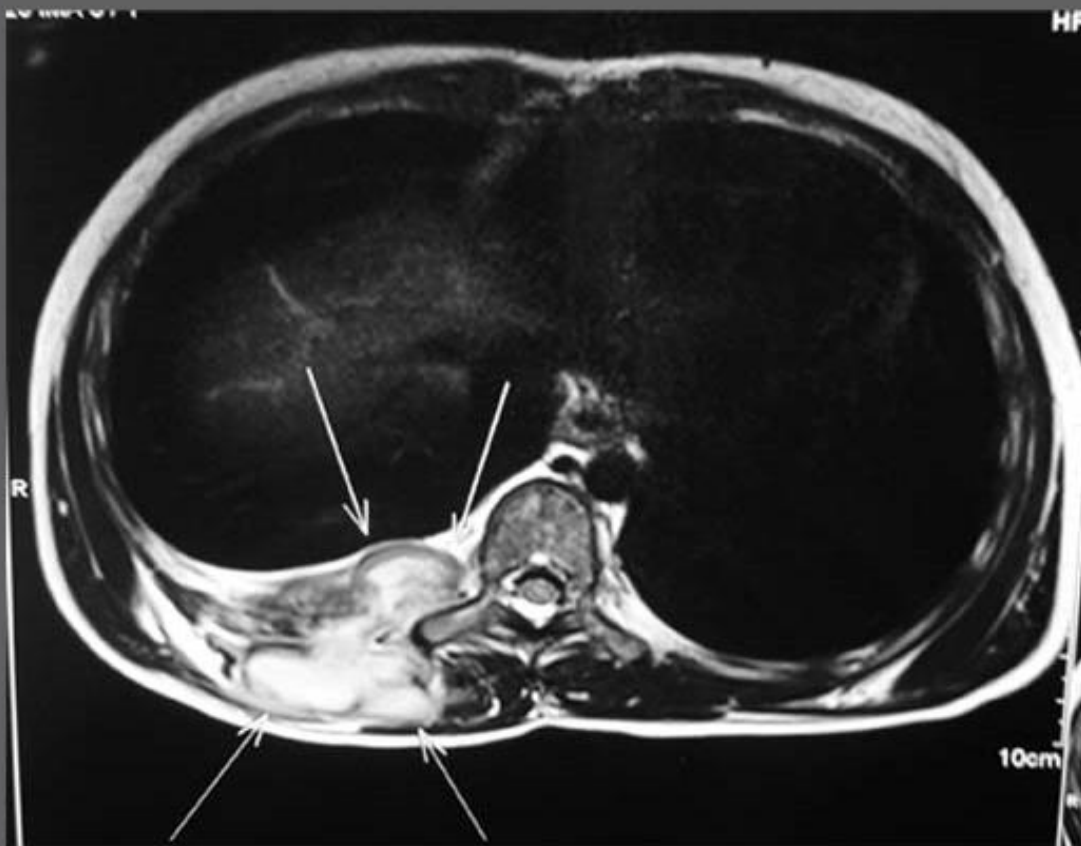


**LARGE LYTIC LESION IN THE METAPHYSIS EXTENDING ACROSS TO THE PHYSIS TO EPIPHYSIS**



# OSTEOMYELITIS

- ❖ 9 year old female
- ❖ Swelling upper back with pain - 1 week
- ❖ Xray/MRI - Rt Paraspinal abscess/Osteomyelitis 9th rib
- ❖ Mantoux -Positive/ESR -60
- ❖ Pus c/s - AFB +/Necrotic tissue around the rib - HPE - Granulomatous tissue
- ❖ Quiescent after 1 year of ATT

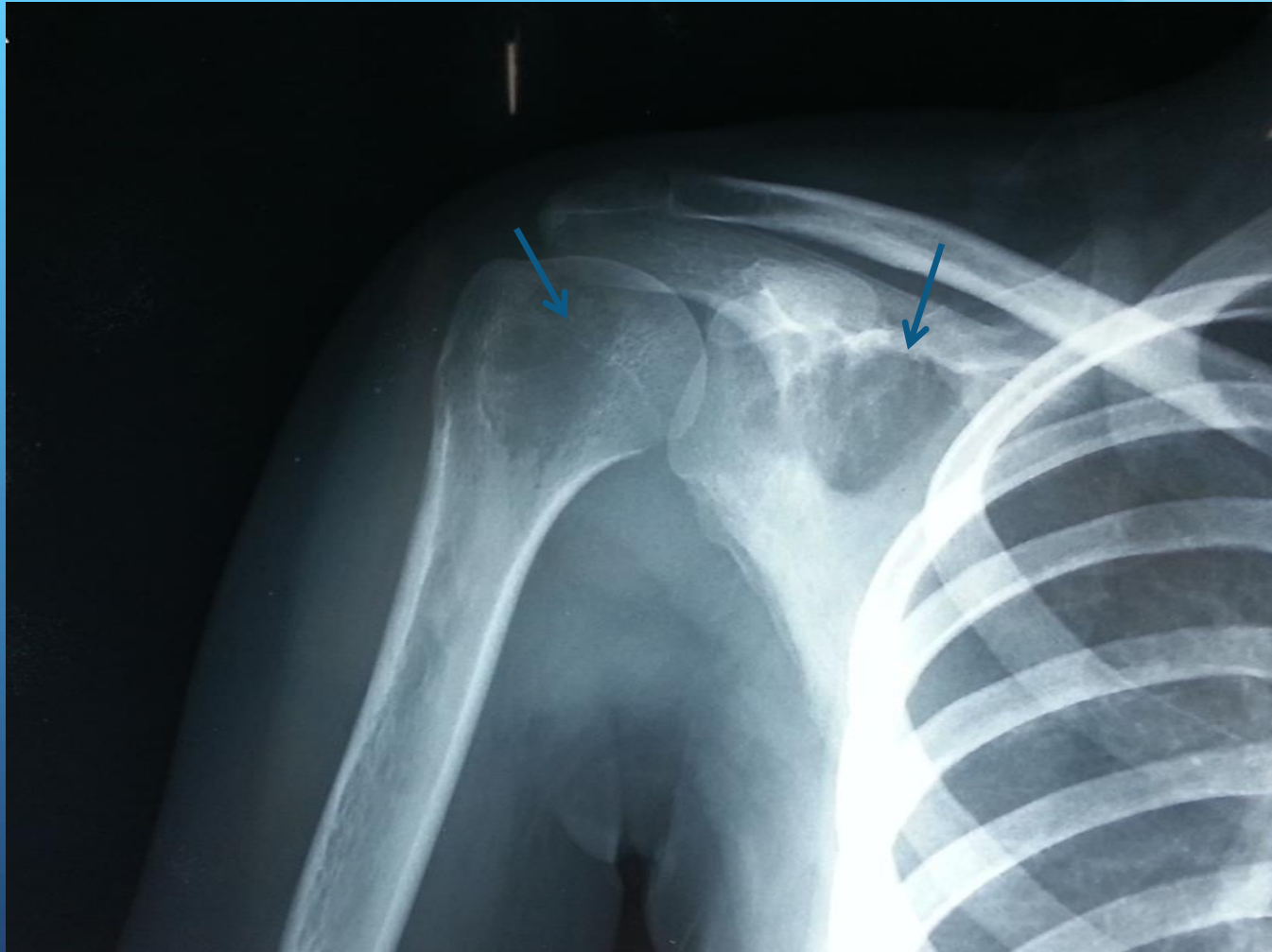


Paraspinal abscess at D6 D7levels. Erosion of 9th rib present

# SHOULDER PAIN

- ❖ 15 years /female
- ❖ Intermittent fever, Pain Rt Shoulder - 2 months
- ❖ Swelling over Scapula & Humerus
- ❖ Restriction of movements around Rt shoulder
- ❖ MRI -Osteolytic lesion in scapula & humerus
- ❖ Aspiration of abscess - 2cc of thick pus /culture negative for AFB

## LYTIC LESION HUMERUS & SCAPULA



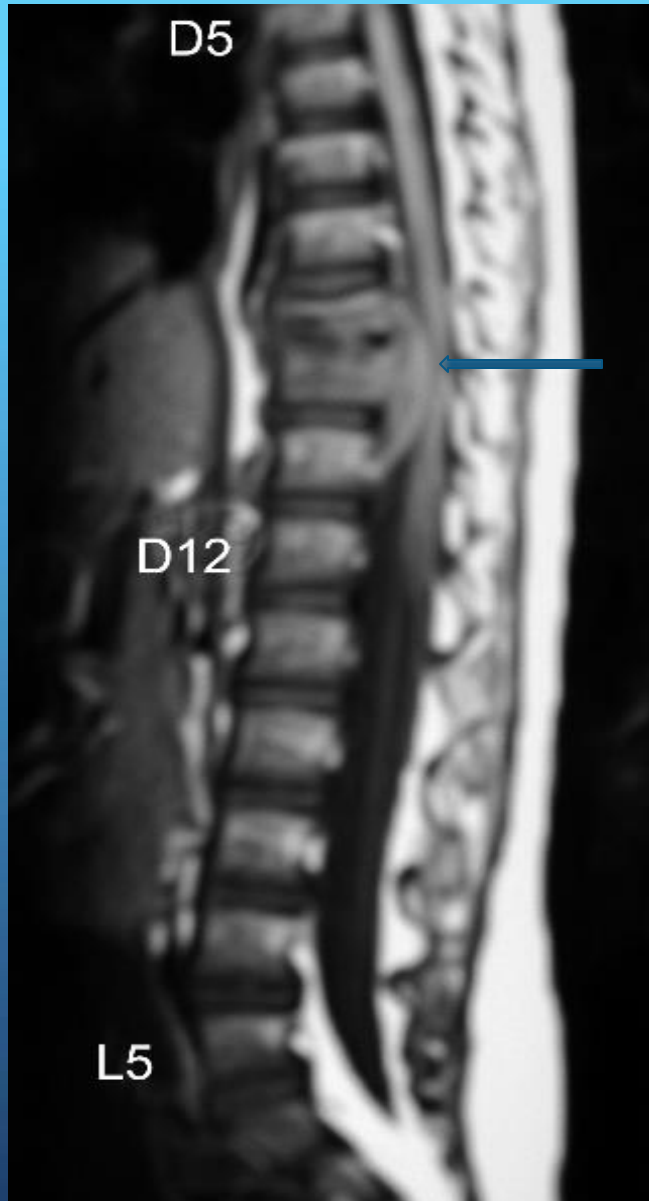
# ACUTE ABDOMEN

- ❖ 2 11/12 years old female child
- ❖ Intermittent Abdominal Pain - 6 months
- ❖ USG abdomen - N
- ❖ Plain Xray Abdomen - collapse vertebra - D9 - D11
- ❖ MRI spine - D9 -D11 - Soft tissue swelling pressing on the cord
- ❖ Started on ATT



**COLLAPSE VERTEBRA D9 -D11**

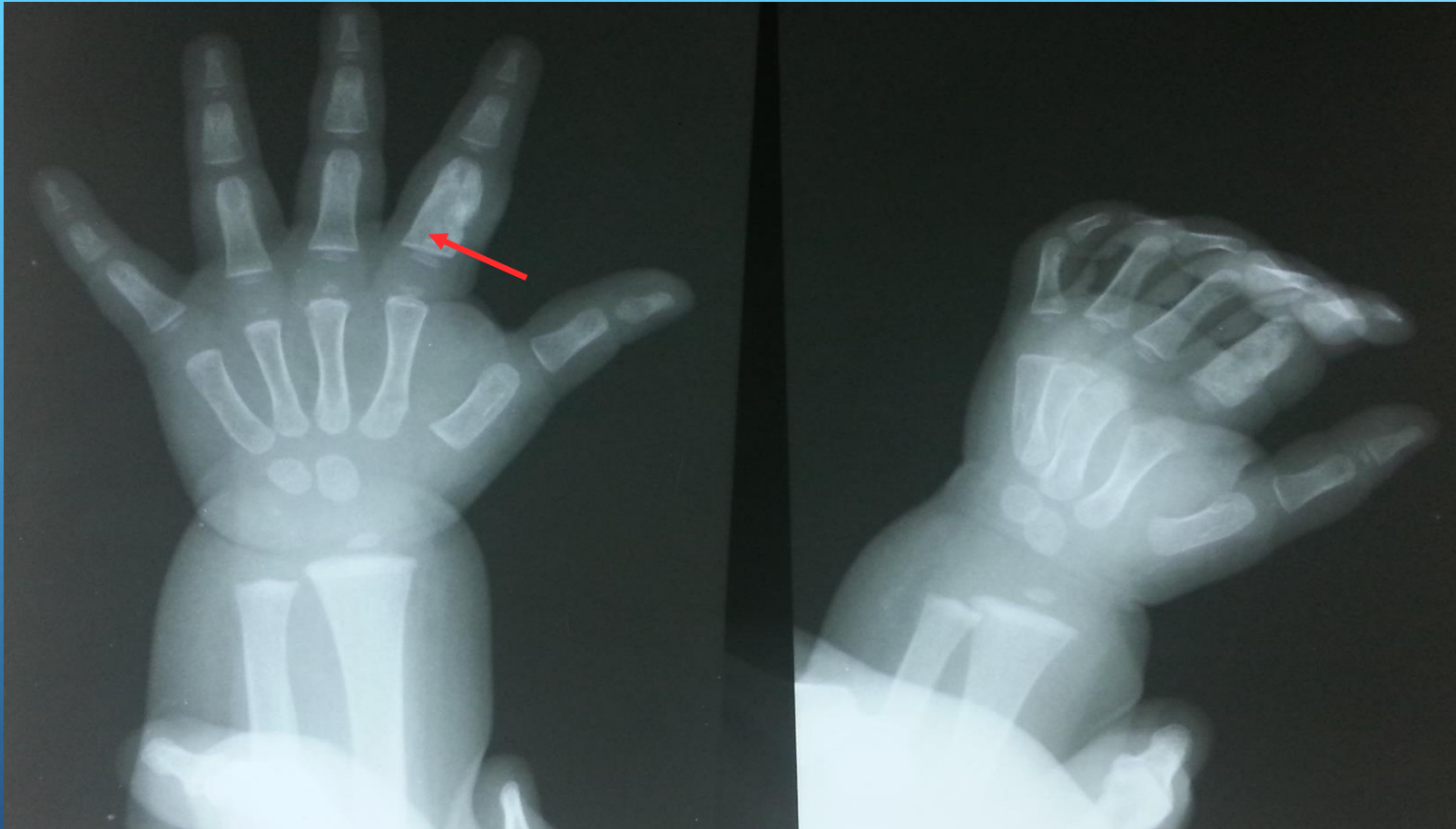




**D9 –D11 – Soft tissue swelling pressing on the cord**

# INDEX FINGER SWELLING IN A 1 YEAR OLD

- ❖ The youngest child in our case series
- ❖ Swelling and redness of left index finger of one month duration
- ❖ MRI was suggestive of infection.
- ❖ Underwent curettage and bone grafting .
- ❖ Histopathology was diagnostic of tuberculosis





## **LEARNING POINTS**

- ❖ **Skeletal tuberculosis is not rare in children**
- ❖ **Awareness about varied clinical manifestations**
- ❖ **High index of suspicion**
- ❖ **Value of Imaging studies/HPE/Culture**



## GLOBAL BURDEN

TB is one of the world's top health challenges:

**MORE THAN 2 BILLION PEOPLE**, equal to a **QUARTER** of the world's population are **infected with TB**



**EACH YEAR**



**9 MILLION** NEW CASES

**1.5 MILLION** DEATHS



Despite our best efforts...



...there is an **unacceptable low rate** of decline in incidence each year

**EACH DAY**

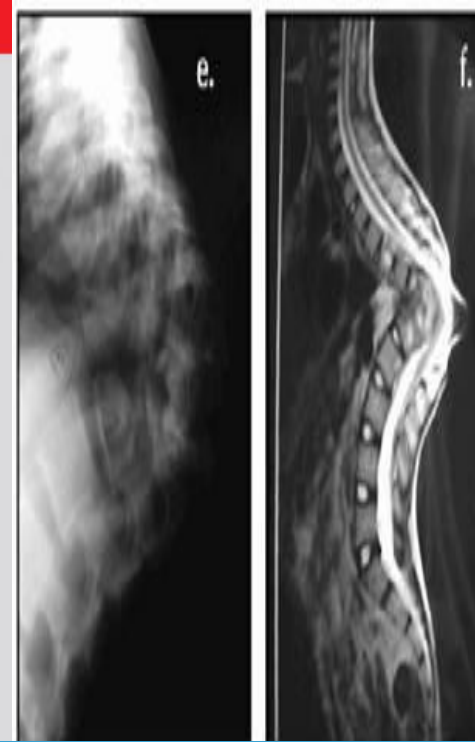
**24,000** NEW CASES



**4,000** DEATHS



**8,000** MISSED



# GEAR UP TO

# END TB

**VISION**

**GOAL**

**A WORLD FREE OF TB**

**END THE GLOBAL TB EPIDEMIC**

TARGETS

# REFERENCES

- ❖ Zimmerman, M.R. Pulmonary and osseous tuberculosis in an Egyptian mummy. Bull NY Acad Med. 1979; 55: 604-608
- ❖ Teo HE, Peh WC Skeletal tuberculosis in children. Pediatr Radiol. 2004;34(11):853
- ❖ WHO global report 2016



# **ACKNOWLEDGEMENT**

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**Thank You**

